STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – DIVISION OF WATER QUALITY
APRIL 23, 2013

ITEM 4

SUBJECT

MERCURY PROGRAMS INFORMATIONAL UPDATES: STATUS OF ADOPTED MERCURY TOTAL MAXIMUM DAILY LOADS BY THE SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD (SAN FRANCISCO BAY WATER BOARD) AND THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD (CENTRAL VALLEY WATER BOARD), AND THE DEVELOPING FRAMEWORK FOR A STATEWIDE MERCURY PROGRAM FOR INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES, WHICH INCLUDES A CONTROL PROGRAM FOR MERCURY IMPAIRED RESERVOIRS AND METHYLMERCURY FISH TISSUE OBJECTIVES WITH ASSOCIATED IMPLEMENTATION

DISCUSSION

Mercury impairments have been addressed at the Regional Water Quality Control Boards (Regional Water Boards) by the development of Total Maximum Daily Loads (TMDLs), most notably those by the San Francisco Bay Water Board and Central Valley Water Board. Currently, State Water Resources Control Board (State Water Board) and Regional Water Board staff are developing a Statewide Mercury Program for Inland Surface Waters, Enclosed Bays, and Estuaries (Statewide Mercury Program), which includes a Control Program for Mercury Impaired Reservoirs and Methylmercury Fish Tissue Objectives with Associated Implementation. This program is being developed collaboratively by the State Water Board and Regional Water Boards with the intent of maximizing State Water Board and Regional Water Board scientific expertise by developing a program that will be applicable to all the regions.

Regional Board TMDL Work: Central Valley Water Board

The Central Valley Water Board completed TMDLs that address mercury in Clear Lake, the Cache Creek watershed, and the Sacramento-San Joaquin River Delta (Delta). The Cache Creek watershed covers 3 percent of the land surface area in the Sacramento River Basin, yet contributes 30 percent of the mercury load to the Delta annually. Thus, the Central Valley Water Board focused its initial mercury TMDL efforts on the Cache Creek watershed, which includes Clear Lake. More than 80 other water bodies in the Central Valley Region are impaired due to mercury and await TMDL control programs. Many of those water impairments will be addressed in the Statewide Mercury Program.

Implementation programs for the Cache Creek and Clear Lake TMDLs focused on control of mercury-containing soil and sediment from mines and other areas. At the Sulphur Bank Mercury Mine, located on the shore of Clear Lake, the United States Environmental Protection Agency (U.S. EPA) has completed some cleanup actions and is continuing testing of additional control measures. Elsewhere in the Cache Creek watershed, remediation has been completed at two mine sites. The Central Valley Water Board is working with the U.S. Bureau of Land Management and private owners to develop remediation plans for other mines. The Delta mercury control program includes limits on inorganic mercury, a study phase to develop control measures for methylmercury from point and nonpoint sources, and a program to reduce

exposure to mercury among people who eat Delta fish. Resources to implement the exposure reduction program are uncertain, such that the scope of the program may narrow.

Regional Board TMDL Work: San Francisco Bay Water Board

In 2008, the San Francisco Bay Mercury TMDL was approved by U.S. EPA. In 2007, the San Francisco Bay Water Board issued the first watershed mercury NPDES permit for wastewater dischargers. Wastewater dischargers have significantly controlled mercury, and the permit was updated in 2012 to reflect that the average annual wastewater mercury load is below the final TMDL limit of 11 kilograms (kg) mercury/year.

Both the watershed mercury permit and San Francisco Bay Water Board's NPDES Phase I municipal storm water permit require the permittees to participate in programs to reduce the public health impacts of exposure to mercury in San Francisco Bay/Delta fish. To accomplish this, the permittees initiated a partnership with the State Water Board, U.S. EPA, the Office of Environmental Health Hazard Assessment (OEHHA), the Western States Petroleum Association, California Department of Health Services, and the Aquatic Science Center. The group has completed a two-year project, which funded four local nonprofit organizations to conduct outreach to underserved populations who consume San Francisco Bay fish. (See http://www.sfei.org/sfbfp for details.) All parties are now determining what follow up actions are appropriate and what funding sources might be available.

San Francisco Bay Water Board has also addressed historic sources of mercury from mining via TMDLs including the Guadalupe River Watershed Mercury TMDL. The Guadalupe River drains New Almaden Mine, the most-productive mercury mine in North America. The Santa Clara Valley Water District owns and operates reservoirs built on mercury-polluted creeks adjacent to New Almaden. As a part of the TMDL, the Santa Clara Valley Water District commenced special studies and pilot projects to reduce methylation in these reservoirs even before the Guadalupe River Watershed Mercury TMDL was completed. Those studies continue, and their results may be applied to the Statewide Mercury Program.

San Francisco Bay Water Board also developed mercury TMDLs for Walker Creek and Tomales Bay. Those TMDLs are successfully focusing on stabilizing mining waste via erosion control Best Management Practices (BMPs) to prevent further discharge, allowing the impaired water bodies to recover over time. This BMP-based remedial approach was taken in 2000 on a Marin County mercury mine operated as recently as the 1960s. Before-and-after studies demonstrate that the mine remediation has already resulted in measurable reductions in sediment mercury concentrations downstream, at the Walker Creek Delta in Tomales Bay.

Control Program for Mercury Impaired Reservoirs

Mercury impairment in reservoirs is a widespread problem: staff estimates that half or more of California's 1,000 – 1,400 reservoirs are impaired by mercury. The Water Boards have assembled a work team of State and Regional Board staff to address this issue. The work team proposes the Water Boards use their regulatory authorities to reduce discharges of mercury, but source control alone will not solve the problem. The work team would like to foster innovation in reservoir water chemistry and fisheries management. With the support of Board Members, the work team hopes to craft a coordinated program that will include other organizations willing to lead studies and conduct pilot tests, starting with a few reservoirs. The work team is optimistic that some of the initial studies will yield tools that can be expanded to more reservoirs as knowledge increases. Further by having intra- and inter- agency teams, which include reservoir operators, staff believe it is more likely that impairments will be efficiently addressed on a

statewide basis, as compared to developing control programs and/or TMDLs individually on a water body or region-by-region basis.

Lessons learned from mercury TMDLs that are being employed in the Statewide Mercury Program include:

- The value of a coordinated effort to address common problems across multiple sites – for example, the coordinated monitoring program for Guadalupe minimizes duplication of effort and allows partners to address common problems by pooling scarce resources.
- The value of stakeholders conducting studies and pilot tests. Local knowledge of reservoir history and operation mean individual reservoir operators are key stakeholders in identifying the cause of and likely solutions to methylmercury production.
- The value of mine cleanup via erosion control BMPs to stabilize mining waste. Measureable reductions in mercury discharges at mine sites yield benefits downstream.
- The success of mercury exposure reduction programs depends on the involvement of, and funding for, public health agencies, who have expertise and experience in public risk communication. For instance, the Delta exposure reduction program has stalled because the California Department of Public Health does not have funding to take on this project.

Methylmercury Fish Tissue Objectives with Associated Implementation

The State Water Boards have also assembled a work team at the State Water Board to develop methylmercury fish tissue objectives for inland surface waters, enclosed bays, and estuaries for consideration by the State Water Board. This work team plans to propose new statewide fish tissue objectives for methylmercury to align California with the most recent human health guidance from USEPA, and to fill a long standing gap in protection for wildlife. The proposed objectives will support the Control Program for Mercury Impaired Reservoirs by establishing a statewide target methylmercury fish tissue concentration. The State Water Board work team recommends that the proposed objectives and the proposed implementation plan not supersede any methylmercury or mercury site-specific objectives, existing TMDL targets, or their corresponding implementation plans.

The State Water Board work team plans to develop the fish tissue objectives to protect human health by using the same general approach that was used to derive the site-specific objectives for the San Francisco Bay TMDL and Delta TMDL. While the proposed methylmercury fish tissue objective will protect the general public based on current fish consumption rates, there are segments of the population (e.g. Native American tribes and subsistence fishers) that are known to consume at more than the average rate. To address this, the work team plans to propose statewide beneficial use definitions for Native American Culture and Subsistence Fishing for consideration along with the fish tissue objectives. The team may propose additional fish tissue objectives at a later date for these populations, based on a survey of tribal fish consumption rates that is currently under way as part of this project.

The fish tissue objective that the work team plans to propose for human health will be protective of most of these threatened and endangered species. However, the proposed fish tissue objective will not provide adequate protection for the California Least Tern, a small endangered bird that lives primarily along the southern California coast. To address this, the work team is planning to propose a second fish tissue objective for small fish to protect this endangered species. The work team is developing a proposal for implementation measures for these proposed fish tissue objectives to address discharges of methylmercury and mercury statewide.

Expected Schedule: Statewide Mercury Program

The Statewide Mercury Program is expected to undergo peer review in January of 2014 and be presented to the State Water Board in July of 2014.

POLICY ISSUE

This is an informational item and no policy decision needs to be made.

FISCAL IMPACT

No action will be taken. This is an informational item only.

REGIONAL BOARD IMPACT

None. This is an informational item.

STAFF RECOMMENDATION

None. This is an informational item.